Filed on: 06.01.2023

BEFORE THE NATIONAL GREEN TRIBUNAL (SZ), CHENNAI

MEMORANDUM OF APPEAL

(UNDER SECTION 18(1) READ WITH SECTIONS 16 OF THE NATIONALGREEN TRIBUNAL ACT, 2010)

APPEAL No. 75 of 2021

SHOUKKATH ALI : APPELLANT

Vs.

STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY & ORS : RESPONDENTS

SECOND ADDITIONAL REJOINDER AGAINST THE COUNTER AFFIDAVIT FILED BY THE 4TH RESPONDENT

HARISH VASUDEVAN (H-253) [K/779/2013]

Counsel for Appellant

Amicus Advocates

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BEFORE THE NATIONAL GREEN TRIBUNAL (SZ), CHENNAI

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(UNDER SECTION 18(1) READ WITH SECTIONS 16 OF THE NATIONALGREEN TRIBUNAL ACT, 2010)

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INDEX

Dated this the 5th day of January, 2023.

COUNSEL FOR THE APPELLANT

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I, Shoukkath Ali, aged 34 years, S/o Muhammed Ali. C, Charalil House, North Paloor, Pulamanthole P.O, Malappuram District, do hereby solemnly affirm and state as follows:

1. I am the appellant in the memorandum of appeal and as such I am conversant with the facts of the case. I am competent to swear this affidavit. An additional rejoinder was filed by the Appellant against the Counter Affidavit filed by the 4th Respondent in this Appeal. On 03.01.2023, while hearing the Appeal, the 4th Respondent has made an attempt to deny mislead this Hon'ble Court stating that the area for which Exhibit P1 is granted is totally a new area far away from the quarry site where illegal mining was done by the 4th Respondent. The 4th Respondent has made some weak attempt in these lines by showing the sub-divisions in survey numbers in the documents attached to the Counter Affidavit. It is total false and documents shows otherwise. Hence filing this second additional rejoinder.

2. It is respectfully submitted that the area where mining activity was

conducted after 2012 and prior to 2019 is the same area for which the Environment Clearance was applied for by the 4th respondent in the year 2019 through Annexure A19, A20 and A21. The area where mining activity was permitted in favor of the 4th respondent and mining activity was conducted without a prior EC has subsequently been sub divided into sub-divisions. The earlier plot has been sub divided only to assign a separate survey number, to confuse the authorities in this regard. The 4th respondent had deliberately suppressed a material fact in Annexure A2 that the project area has already been mined out illegally and deliberately submitted a false information that the project is a new one. The 2 untrustworthy members of the SEAC who had visited the site did not even mention this fundamental fact before the Committee. The Google Earth Satellite Image of the area having Geo Coordinates of the plot mentioned in Annexure A1 & A2 from the year 2012 – 2020 would show that the area where illegal mining was done by the 4th respondent prior to 2019 is the same area where Annexure A1 is granted and there is absolutely no difference in the site. By plotting the Geo Coordinates mentioned in Annexure A1 in the Google Earth and taking the time line series images of the site in the year 2012 December, it is clear that the mining activity was going on in the said plot. A true Google Earth Image of the area mentioned in Annexure A1 in December 2012 is produced herewith and marked as **Annexure A29.** A close examination of Annexure A29 would prove that the mining activity was going on by using excavators in the said plot. Another image of the project area by plotting the Geo Coordinates mentioned in Annexure A1 in the Google Earth in the month of September 2018 would show that a large extent of area is mined out from 2012 to 2018 without obtaining prior EC. A true

Google Earth image of the land mentioned in Annexure A1 in September 2018 is produced herewith and marked as **Annexure A30.** A Google Earth Image of the same plot in the month of February 2020 would show that large extent of land has already been mined out on a steep slope removing thick green vegetation from the project site and the project site has become 3 big pits as three water bodies. A true Google Earth Image of the area covered by Annexure A1 in February 2020 of the project site is produced herewith and marked as **Annexure A31.** These three images would show that the Geo Coordinates is Annexure A2 application and Annexure A1 EC is of the plot where illegal mining was conducted in large scale prior to the filing of Annexure A2 application, in between 2012 and 2018. This fundamental aspect was concealed deliberately before the 1st respondent by the 4th respondent and therefore Annexure A1 was issued for the regularization of illegally functioning quarry. On this basis alone, Annexure A1 is liable to be set aside. Even though this aspect was raised in Annexure A15 order, the 1st respondent did not consider the same.

3. It is respectfully submitted that the SEAC did not even cross check the satellite images of the project site before recommending for the grant of EC. The 4th respondent should have been penalized for the entire mineral extraction from the project site illegally and the 1st respondent ought to have considered Annexure A16 & A17 in this regard before doing any appraisal of the project in question. The 1st and 2nd respondents have thoroughly failed in obeying the law of the land.

4. It is respectfully submitted that a revised Environment Management Plan was prepared by the 4th respondent as per the directions of the 2nd

respondent. Even in the said revised EMP, there was absolutely no mitigation measures suggested for the rehabilitation and restoration of the Environment already damaged by the illegal mining. There is absolutely no study regarding the landslide possibility and its impact and mitigation. The revised EMP has not been prepared as per the terms of the EIA Notification 2006. EMP should be prepared based on the EIA manual for mining projects by an Accredited Consultant of NABET. Instead, this was prepared by some non-qualified RQP and this namesake EMP was used only as an eye wash for getting the Environmental Clearance. A true photocopy of the revised Environment Management Plan was prepared by the 4th respondent as per the directions of the 2nd respondent is produced herewith and marked as **Annexure A32.**

All the facts stated above are true to the best of my knowledge, belief & information.

Dated this the 5th day of January, 2023

DEPONENT

Solemnly affirmed and signed before me by the deponent whom I know on this the 5th day of January, 2023 in my office.

Harish Vasudevan
ADVOCATE

VERIFICAION

I, Shoukkath Ali, aged 34 years, S/o Muhammed Ali. C, Charalil House, North Paloor, Pulamanthole P.O, Malappuram District, do hereby verifies that the contents of the above paragraphs 1 to 4 are true to the best of my knowledge and I have not suppressed any material facts.

SIGNATURE OF THE APPELLANT

DATE : 05.01.2023

PLACE: Ernakulam


Google Earth
Imagery Date: 12/10/2012 10°56'05.10" N 76°11'34.39" E elev 60 m eye alt 273 m
Image © 2022 Maxar Technologies
1985
12/2012
1985
2022

Annexure A 30

1985
2/2020
1985
2022
Image © 2022 Maxar Technologies
Imagery Date: 2/16/2020 10°56'05.12" N 76°11'33.70" E elev 71 m eye alt 316 m
Google Earth

REVISED ENVIRONMENT MANAGEMENT PLAN WITH SPECIFIC CER

MRS. NAJEEBALI. M.K
MANNENGALKANNAMTHODI
HOUSE, PALOOR,
PULAMANTHOLE POST,
MALAPPURAM DISTRICT,
KERALA - 679323

SITE AT Re Survey Nos. 1/1B-319, 1/1B-296, 1/1B-295, 1/1B-323, 1/1B-322, 1/1B-321, 1/1B-320,1/1B-329, VILLAGE: PULAMANTHOLE, TALUK: PERINTHALMANNA DISTRICT: MALAPPURAM, STATE: KERALA
PERMIT AREA: 0.4497 HA

Content:

- Revised Environment management plan
- Site specific mitigation measures including compensatory afforestation
- Specific CER

REVISED ENVIRONMENTAL MANAGEMENT PLAN

BASELINE ENVIRONMENT

The baseline environment quality represents the background environmental scenario of various environmental components such as air, noise, land, ecological and socio-economic status of the study area. Field monitoring studies was carried out by M/s Poluchem Laboratories Pvt. Ltd., Kochi (Approved by NABL and Kerala State Pollution Control Board) to evaluate the base line status of the project site in compliance with district SEIAA guidelines.

3.1 AIR ENVIRONMENT

The prime objective of the baseline air monitoring was to evaluate the existing air quality of the area. This will also be useful for assessing the conformity to standards of the ambient air quality during the operation of the proposed mine. Quality of present ambient air is within permissible limit. There is no industrial activity in and around the permit area. The mining has been proposed by semi-mechanized open cast method. Water spraying will be done on haul/service roads, mining area, loading and unloading places etc. There will not be any significant impact on ambient air quality.

Field monitoring studies for 24 hourly frequencies was carried out to evaluate the base line status of the project site in compliance with State SEIAA guidelines.

Ambient Air Monitoring Instruments

Parameters	North Side	South Side	West Side	East Side	Limit as per NAAQS
Particulate Matter (PM^{10})	46.7	54.4	49.7	51.3	100
Particulate Matter ($PM^{2.5}$)	25.4	32.3	27.2	30.3	60
Sulphur dioxide (SO_2)	7.4	6.5	8.4	10.2	80
IS 5182 Part 23 2006	6.3	4.2	5.2	7.3	80

Results & Conclusions: The results obtained are given in Mining Plan It is seen that the ambient air monitoring results obtained are well within the prescribed standards (NAAQS) with respect to PM_{10}, $PM_{2.5}$, NO_2 and SO_2.

3.2 WATER ENVIRONMENT

The purpose of this study is to:-

- Assess the water quality characteristics for critical parameters;
- Evaluate the impacts on agricultural productivity, habitat conditions, recreational resources and aesthetics in the vicinity; and
- Predict the likely impacts on water quality due to the project and related activities.

To analyze the suitability of water for mining purpose, water sample from open well close to the quarry (within their own property) were collected. The sample was collected by grab sampling technique. The sample was analyzed as per the procedures specified in 'Standard

Methods for the Examination of Water & Wastewater' published by American Public Health Association (APHA).

Parameters tested	Test method	Results	Acceptable Limit As Per IS 10500-2012
Color	IS 3025 (P) 04 – 1983 RA2017	5 Hazen Unit	5 Hazen Unit
Odour	IS 3025 (P) 05 – 983 RA2017	Agreeable	Agreeable
Turbidity	IS 3025 (P) 10 – 1984 RA2017	1 NTU	1 NTU
pH	IS 3025 (P) 11 – 1983 RA 2017	6.12	6.5 - 8.5
Total Dissolved Solids	IS 3025 (P) 16 – 1984 RA2017	88 mg/l	500 mg/l
Total Hardness as $CaCO_3$	IS 3025 (P) 21 – 1983 RA2014	47.6 mg/l	200 mg/l
Total Alkalinity as $CaCO_3$	IS 3025 (P) 23 – 1986 RA2014	34.8 mg/l	200 mg/l
Residual Chlorine	IS 3025 (P) 26 – 1986 RA2014	BDL	0.2 mg/l
Chloride as Cl	IS 3025 (P) 32 – 1988 RA2014	7.83 mg/l	250 mg/l
Calcium as Ca	IS 3025 (P) 40 – 991 RA2014	12.6 mg/l	75 mg/l
Magnesium as Mg	IS 3025 (P) 46 – 994 RA2014	3.36 mg/l	30 mg/l
Total Iron as Fe	IS 3025 (P) 53 – 2003 RA2014	0.15 mg/l	0.3 mg/l
Sulphate as SO_4	IS 3025 (P) 24 – 1986 RA2009	1.6 mg/l	200 mg/l
Fluoride as F	IS 3025 (P) 60 -2008 RA 2013	BDL	1.0 mg/l

Results & Conclusions: -

There is no water regime of any importance in the quarry area. Drinking water is made available through open wells. This water is being used for drinking purpose from many years. Detailed Report of Water Quality of the proposed site is enclosed in the Mining Plan.

3.2.1 HYDROGEOLOGY

Ground water occurs under phreatic, semi-confined and confined conditions in the above formations. The weathered Charnockites, Granite gneiss, schists and laterites form the major phreatic aquifers, whereas the deep fractures in the Charnockites, Granite Gneiss & schists and the granular zones in the Tertiary sedimentary formations form the potential confined to semi confined aquifers.

The Archaean rocks: - The shallow aquifers of the Archaean rocks are made up of the highly decomposed weathered zone or partly weathered and fractured rock. Thick weathered zone is seen along the midland area either beneath the Laterites or exposed. In the hill ranges, thin weathered

zone is seen along topographic lows, area with lesser elevation and gentle slope. In areas along the hill ranges generally rock exposures are seen. The depth to water level in this aquifer varies from 2 to 16 mbgl and the yield of the well ranges between 2 to 10cu.m. per day.

Laterites: - The depth to water level in the formation ranges from less than a meter to 25 mbgl. Laterite forms potential aquifers along valleys and can sustain medium duty irrigation wells with the yields in the range of 0.5 - 6 cu.m. per day. The occurrence and movement of ground water in the laterites are mainly controlled by the topography. Laterite is a highly porous rock formation, which can form potential aquifers along topographic lows. However, due to this same porous nature, groundwater is drained from elevated places and slopes at shortest duration after monsoon due to which scarcity is experienced in the elevated places and slopes.

3.3 NOISE ENVIRONMENT

The main objective of noise monitoring in the study area is to establish the baseline noise levels and assess the impact of the total noise expected to be generated during the project operations in the project site.

Noise (Sound) Measuring Instrument

Instrument	Make	Model No.	Instrument Identification	Detection Limit
Integrated Sound Level Measurement Instrument Standard Accessories	Lutron	SL-4001	SAL/NOISE/INT/01	Lo 30-80dB Hi 80-130dB

Testing Method to be followed

Particular		Testing Method to be Followed
Noise Level Measurement		
A	Noise Level in dB (A) for continuous 24 hours at 1 hour interval	Operational Manual of Noise level Meter, Model No. DT - 805 issued by Mextech

Sl.No	Parameters	North East	South	East	West
1	Day Time	49.5 dB(A)	49.7dB(A)	48.3dB(A)	47.6 dB(A)
2	Night Time	34.2 dB(A)	34.7dB(A)	33.2dB(A)	34.4 dB(A)

Vibration levels (due to blasting)

The drilling is proposed by jack hammer with 33mm dia. The blasting shall be done individually. Due to very small diameter hole blasting the vibration in this area shall be very minor.

Results and conclusion:-

It is seen from the obtained results that the Noise levels are well within the prescribed national standards is enclosed in the Mining Plan.

3.4 BIOLOGICAL ENVIRONMENT

Study of biological environment is one of the important aspects in Environmental Impact Assessment in view of the need for conservation of Environmental quality. A detailed study has been carried for enumeration of species. Occurrences of flora at various locations were observed and typical plant species were collected. The visual observations of plants were recorded with a view to obtain some idea about the relative density of certain species and their predominance. Primary survey for flora and fauna studies has been conducted in the core zone.

FLORA

Existing flora in the project area.

TREES

Table 5.List of trees observed from the study area

SlNo	Scientific Name	Local name	No of Individuals
1	*Anacardium occidentale*	Kashumav	1
2	*Tectona grandis*	Thekk	39
3	*Havea braziliensis*	Rubber	53
4	*Macaranga peltata*	Vatta	5
5	*Trema orientalis*	Amapotty	3
6	*Zanthoxylum rhetsa*	Kothumurik	10
7	*Ficus hispida*	Erumaparakam	3
8	*Ficus exasperate*	Parakam	4
9	*Olea dioica*	Edala	1
10	*Briedelia retusa*	Kaini	2
11	*Grewia tiliifolia*	Chadachi	2
12	*Morinda pubescens*	Pavattamaram	3
13	*Caryota urens*	Pana	3
14	*Cocos nucifera*	Thengu	17
15	*Mangifera indica*	Mavu	3
16	*Tamarindus indica*	Puli	1
17	*Ailanthus triphysa*	Matti	9

HERBS

Table 9.List of Herbs observed from the study area

Sl. No.	Species	Local name
1	*Alimania nodiflora*	
2	*Alysicarpus sps.*	Nila-orila
3	*Anisochiluscarnosus*	Kattukoorka
4	*Biophytum sps.*	Nilappana
5	*Boerhavia sps.*	Thazhuthama
6	*Euphorbia hirta*	Nilappala
7	*Hybanthusen neaspermus*	Orithalthamara
8	*Mimosa pudica*	Thottavadi
9	*Naregamia alata*	Nilanarakam
10	*Oldenlandia corymbosa*	Parpadakapullu
11	*Sida alnifolia*	Kurumthotti
12	*Sida cordifolia*	Vallikanjiram
13	*Spermacoce sps.*	Tharthaval
14	*Amorphophallus sps.*	Kattuchena
15	*Axonopus compressus*	Buffalo grass
16	*Curculigo orchioides*	Nilappana
17	*Cymbopogon sps.*	Theruvapullu
18	*Pennisetum polystachyon*	Pothapullu
19	*Perotis indica*	

SHRUBS

Table 10.List of shrubs observed from the study area

NO	Botanical Name	Local name
1.	*Alstonia scholaris*	Ezhilamppala
2.	*Canthium coromandelicum*	Karamullu
3.	*Chassalia curviflora*	Karutha-amalppori
4.	*Chromolaena odorata*	Communist-pacha
5.	*Clerodendrum infortunatum*	Paragu
6.	*Desmodium pulchellum*	Neendaorila
7.	*Desmodium triquetrum*	Adakkachokki
8.	*Flueggea leucopyrus*	Perimklavu
9.	*Holarrhena pubescens*	Kudagapala
10.	*Ixora coccinea*	Techi
11.	*Lantana camara*	Arippu
12.	*Leea indica*	Kallampotty
13.	*Mallotus philippensis*	Sindooram
14.	*Olea dioica*	Edala
15.	*Pennisetum polystachyon*	Poochavalanpullu
16.	*Pseudarthria viscida*	Muvila
17.	*Streblus asper*	Paruva

Conclusion: - There is no flora species existing at site which are in the red listed category or scheduled species category.

3.4.2 FAUNA

FAUNA: Observed in the area are:-

Avian Fauna

Table 4: List of Butterflies recorded in the study area

Sl.No.	Common name	Scientific name	FN Count	AN Count	Status
1.	Psyche	*Leptos ianina*	4	2	LC
2.	Common emigrant	*Catopsilia Pomona*	1	4	LC
3.	Common crow	*Euploea core*	10	8	LC
4.	Chocolate pancy	*Junonia iphita*	2	3	LC
5.	Crimson rose	*Pachliopta hector*	4	2	LC
6.	Common rose	*Pachliopta aristolochiae*	2	2	LC
7.	Common grass yellow	*Eurema hecabe*	2	0	LC
8.	Three spot grass yellow	*Eurema blanda*	1	3	LC
9.	Pea Blue	*Lampides boeticus*	8	4	LC
10.	Tailed Jay	*Graphium agamemnon*	2	0	LC
11.	Common cerulean	*Jamides celeno*	6	5	LC
12.	Common jezebel	*Delias eucharis*	2	3	LC
13.	Common sailor	*Neptis hylas*	1	0	LC
14.	Dark Blue Tiger	*Tirumala septentrionis*	4	2	LC
15.	Common four ring	*Ypthima huebneri*	6	3	LC
16.	Tawny Coster	*Acraea violae*	2	1	LC
17.	Yamfly	*Loxura atymnus*	0	1	LC
18.	Gladeyebushbrown	*Mycalesis patnia*	2	5	LC

Table 1: List of Mammals recorded in the study area

	Scientific name	Common Name	Status	FN count	AN count	Remarks
1	*Funambulus palmarum*	Indian Palm Squirrel	LC	3	0	

"Indirect evidence" species likely to be present in the area

Table 2: List of Reptiles recorded in the study area

	Scientific name	Common Name	Status	count	Remarks
1	*Eutropis carinata*	Brahminy Skink	LC	3	
2	*Calotes versicolor*	Garden lizard	LC	2	

Table 3: List of Birds recorded in the study area

Sl.No.	Common name	Scientific name	FN	AN	Status
1.	Oriental Magpie Robin	*Copsychuss aularis*	5	3	LC
2.	Asian Palm Swift	*Cypsiurus balasiensis*	8	2	LC
3.	Ashy Drongo	*Dicrurus leucophaeus*	3	1	LC
4.	Red-vented Bulbul	*Pycnonotus cafer*	12	5	LC
5.	House Crow	*Corvus splendens*	8	6	LC
6.	Jungle Babbler	*Turdoides striata*	12	5	LC
7.	Loten's sunbird	*Cinnyris lotenius*	4	2	LC
8.	Purple Sunbird	*Cinnyris asiaticus*	3	1	LC
9.	RufousTreepie	*Dendrocitta vagabunda*	4	0	LC
10.	Greater Coucal	*Centro pussinensis*	3	1	LC
11.	Black-hooded oriole	*Oriolu sxanthornus*	3	0	LC
12.	Black-naped Oriole	*Oriolus chinensis*	2	1	LC
13.	White breasted kingfisher	*Halcyon smyrnensis*	2	1	LC
14.	Brahminy Kite	*Haliastur Indus*	1	0	LC
15.	White-cheeked Barbet	*Psilopogon viridis*	6	2	LC
16.	Common Myna	*Acrido theresstristis*	6	2	LC
17.	Chestnut-headed Bee-eater	*Merops leschenaulti*	8	3	LC
18.	Green Bee-eater	*Merops orientalis*	4	1	LC
19.	Spotted dove	*Streptopelia chinensis*	3	0	LC
20.	Greater Golden-backed Woodpecker	*Chrysocolaptes lucidus*	0	1	LC
21.	Indian Peafowl	*Pavo cristatus*	2	0	LC
22.	White browed Wagtail	*Motacilla maderaspatensis*	0	2	LC
23.	Rufous Babbler	*Argya subrufa*	0	4	LC

Conclusion: - There is no fauna species existing at site which are in the red listed category or Schedule -I species category.

SOCIO-ECONOMICS

Social and demographic profile:

The mine is situated in the remote area, where the socio- economic status of the people is not satisfactory. The main occupation of the people is farming and there are no major industries in this area. The quarrying operation in such remote places would provide 10 direct & indirect employment to local people. Hence, quarrying operation will help in improving socio-economic status of the area. It is expected that mining can boost the gross economic production of the area other than industrial activities. It

provides new avenues of direct or in direct employment and business. These coupled with growth in infrastructural facilities results in improved socio-economic prospects. The mining in the region will open the gates for socio-economic upliftment of the area. People will be employed in the mines and will be self-employed in the ancillary works. People will be getting better facilities of communication and amenities due to mining activities in the region.

Occupational health and safety hazards:

The statutory norms shall be followed during the course of quarrying to ensure the proper health and safety of workers. Apart from this there is no other factor envisaged during the quarrying operations.

Historical monuments etc. There are no historical monuments in the core or buffer zone.

Topsoil & Overburden Management:

A total quantity of 4540cu.m of topsoil is proposed to be removed during the mining operations. About 2403 cu.m of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation. The land use pattern is given below with all the details. The road will have width of at least 7m.

The details of land area indicating the area likely to be degraded due to mining will be as under:-

S. No.	Land Use Category	Pre-Operational (Ha.)	Operational (Ha.)	Post-Operational (Ha.)
1	Top Soil Dump	Nil	0.10 (Outside)	-
2	Over burden	Nil		
3	Excavation	Nil	0.1922(0.1ha Reclaimed by plantation)	0.1922 (Reclaimed by plantation)
4	Road	0.065	0.075	0.075
5	Built Up Area	-	-	-
6	Drainage	-	-	-
7	Green belt	-	0.1825	0.1825
8	Undisturbed Area	0.3847	-	-
Total		**0.4497**	**0.4497**	**0.4497**

Year wise Proposal for reclamation of land.

As the mining will progress, the areas where ultimate pit depth is reached, backfilling will be started. This will reduce the transportation of OB and waste outside the pit area. There is proposal of backfilling and re-contouring during the next three years of this mining plan. The reclaimed area may also be considered for plantation to develop green belts. Abandoned pits will be utilized for water storage during rainy season. This water will be utilized for irrigation and plantation etc. It will also help in recharging the ground water.

At conceptual stage, the pit shall be developed for pisciculture. Since the granite rocks are exposed no waste will be generated in the area and as such no external waste dumping is required. In the mine closure stage, the entire mined out area of 0.4497 Ha will be reclaimed back with bench plantation / plantation. The mined area will be properly fenced all around. It is also suggested to construct a retaining wall where all required and also a garland drain for collection of rain water at the bottom. Silted water if any will be collected in the garland drain which in turn will flow into settling pond. Supernatant clear water will be let out of the area after passing through silt traps.

Afforestation Programme

The year wise programme of eco-restoration for the life of mine, about 100-125 trees will be planted in an area of 0.1825 ha.

Biological reclamation / ecological restoration for the mined area by plantation of the species as per the time schedule suggested below: -

First Six months	--	Herbs & grass
Next Six months	--	Shrubs
Next Six months onwards	--	Trees

Selection of species is based on High Dust Capturing, Soil Holding Capacity, ground water recharge capacity etc. More focus is given for medicinal plants. Plantation along the boundary of the permit area i.e. within 7.5 m barrier of the permit area boundary has been proposed which will help to improve the environment and ecology. Plantation will be done around offices, road side and fencing boundary etc.

Treatment and disposal of water from mine:

Except during monsoon months, no water shall be discharged from mine. A garland drain shall be made all around the quarry to divert the water away from the pit through silt settling tank. The rain water shall be diverted to its natural course.

Measures for minimizing adverse effects on water regime:

The water that would be encountered in the project is rainwater. A garland drain shall be made all around the periphery of quarry to divert the water away from the pit. The water shall be collected at silt settling tank before diverting that to its natural course. However granite (building stone) is not toxic and hence there shall not be any chemical hazardous effect.

Protective measures for ground vibrations/air blast caused by blasting:

The drilling is proposed by jack hammer with 33mm dia. Due to small diameter hole blasting the vibration in this zone shall not be even

noticeable. However the measures like monitoring every blast and use of minimum explosives shall be taken.

Measures for protecting historical monuments and for rehabilitation of habitat, settlements, disturbed due to mining activity:

There are no historical monuments in the core or buffer zone.

Socio-economic benefits arising out of mining:

Social and demographic profile: The quarry is situated in the remote area, where the socio- economic status of the people is not satisfactory. There are no major industries in the area. The quarrying operation in such remote places would provide direct & indirect employment to local people. Hence quarrying operation will help in improving socio-economic status of the area.

Monitoring schedules for different environmental components after the commencement of mining operations and related activities

For this quarrying project a quarterly monitoring mechanism for various environmental parameters shall be evolved if needed as per the guidelines issued by District Environment Committee.

Waste Management:

There is no generation of waste material (except the top soil) from these quarry operations during these five years of plan period.

Top Soil Management

A total quantity of 4,540 cu.m. of topsoil is proposed to be removed during the mining operations. The topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage.

Safety & Security:

For safety the permit hold areas shall be fenced with proper gates which shall be guarded by security personals.

Disaster Management & Risk Assessment:

No disaster is expected in this small scale of quarrying; however as an emergency the location of the hospital, police station and fire brigade is given in the Table.

Table No. 12.3: Location of Stations during Emergency from Quarry

Stations	Location of Stations	Distance
Hospital	Health Centre, Chemmalasseri	2.5 km
Police station	Kolathur Police Station	5 km
Fire Brigade	Perinthalmanna	6 km

In case of any eventuality the following person will be available for contact.

MR. NAJEEBALI. M. K.
MANNENGAL KANNAMTHODI HOUSE,
PALOOR, PULAMANTHOLE POST,
MALAPPURAM DISTRICT,
KERALA -679 323.

Care and maintenance during temporary discontinuance:

The following specific measures shall be taken during temporary discontinuance,

a. The pit shall be fenced.

b. Proper and adequate security at the entrance to the mine to prevent entry of unauthorized person with proper gates under lock.

c. All the above will be examined by manager once in a week to ensure that they are in order.

4.0 ENVIRONMENT MONITORING PROGRAM

Environmental monitoring program is a vital process of any management plan of the development project. This helps in signaling the potential problems resulting from the proposed project and will allow for prompt implementation of effective corrective measures. Environmental monitoring will be required for the operation and closure of mining operations. The main objectives of environmental monitoring are:-

- To assess the changes in environmental conditions,
- To monitor the effective implementation of mitigation measures,
- Warn significant deteriorations in environmental quality for further Prevention action.

4.1 REPORTING & DOCUMENTATION

All the necessary reports and documents shall be prepared to comply the statutory rules & regulations. Proper and due care shall be taken to adhere to the laid down rules and regulations by the government. Regular and periodic record shall be kept in order to ensure easier, comparable and brisk review and projection of past, present and future performances. Also, the management shall ensure to prepare separate records for water, wastewater, solid waste, air, emission, soil & manure regularly and periodically in order to provide better and smooth vigilance.

The management shall look into the fact that as soon as the report is prepared, it shall be forwarded to the concerned authority with due care for the purpose of reviewing.

Adhering to the rules and regulations the management shall ensure that the outcome of the reports and the conclusions drawn shall be prepared as per the laid down regulations and procedures. No breach of any convention shall be availed. These reports/documents shall be regularly and periodically reviewed and any changes/discrepancies found in mitigation measures/ operation/ management/ shall be brought into notice instantaneously and all possible corrective actions shall be taken.

5.0 CONCLUSION

It is anticipated that socio-economic impact due to this project will positively enhance the raw materials for the developmental concerns and also may provide ample chances of more employment opportunities for local inhabitants. There are no Resettlement and Rehabilitation issues and litigations in any courts of law pending involved in this project. The project infrastructures can be utilized for the benefit of the local people of the area. The revenue of the State Govt. will be definitely increasing due to the proposed activity by means of CRP as well as the processing fee for appropriate statutory clearances involved in the procedures. The entire project area is devoid of any endangered flora and fauna as specified in the IUCN records and the area is totally far from any other protected areas under the Wildlife Protection Act as well as the Forest Act. It is proposed to reclaim the land and develop green cover for eco-restoration with native species to a maximum extent as far as possible. Thus the proposed project is not having any possibility in generating untoward changes which is capable for altering the equilibrium status of the environment or adjacent ecosystem adversely.